

REMARKS/ARGUMENTS

Claim amendments

Claim 72 is amended. Claims 1, 3-47, 49-60, and 67-71 are cancelled without prejudice or disclaimer. Claims 2, 48, 61-66 and 72 are currently pending.

Claim 72 has been amended to indicate that the modified *Trichoderma reesei* xylanase II comprises an amino acid sequence that is from 93 to 99% identical to SEQ ID NO: 16. Support for this amendment may be found by alignment of the amino acid sequences of xylanase II at are described in Table 2. One skilled in the art of nucleic acid and amino acid sequences routinely calculates such sequence similarities which are herein inherently supported by the discussion and sequences provided in the original disclosure.

Multiple alignment of the amino acid sequences of *Trichoderma reesei* xylanase II (TrX) with each of the modified TrX of the present invention comprising amino acid substitutions at one or more of position 116, 118, 144, and 144 and 161 was conducted using the publicly available ClustalW multiple alignment program (Chenna R., et al., 2003, Nucl. Acids Res. 31: 3497-3500; <http://www.ebi.ac.uk/Tools/clustalw2/index.html>). Alignment of TrX with each of the modified TrX variants, and alignment of each of the variants with each other, resulted in a 93-99% sequence identity to each other. A copy of the results of the ClustalW alignment are attached as Exhibit 1 (Clustalw2—HTX18 pat seqa.txt). Data provided in Figures 3-11 of the present application demonstrate that amino acid substitutions at positions 116, 118, 144, 144, and 161, enhance the thermophilicity and/or alkalophilicity of native TrX2 and also variants of TrX2 that comprise these additional amino acid substitutions.

Rejections under 35 USC §112

Claims 2, 48, 61-66 and 72 are rejected under 35 USC 112 (first paragraph) as failing to comply with the enablement requirement. Examiner states that the specification does not provide enablement for any modified *Trichoderma reesei* xylanase II, and any modification at

positions 116, 118, 144 161 or a combination thereof. Applicant respectfully traverses this rejection.

Claims 2, 48 and 61-66 depend from claim 72 and include the limitations of this base claim.

Claim 72 states that the modified *Trichoderma reesei* xylanase II is selected from a group consisting of a defined list of 12 modified *Trichoderma reesei* xylanase II proteins that have been described in the specification and that comprise specified modifications at one or more of positions 116, 118, 144, 161. The claim is therefore not directed to any modified *Trichoderma reesei* xylanase II as suggested by Examiner.

To further clarify claim 72, this claim has been amended to rearrange the wording of this claim.

Removal of the rejection to claims 2, 48, and 61-66 under 35 USC 112 (first paragraph) is respectfully requested.

Claims 2, 48, 61-66 and 72 are also rejected under 35 USC 112 (first paragraph) as failing to comply with the written description requirement. Examiner states that the claims contain subject matter that was not described in the specification. Applicant respectfully disagrees with this rejection.

Claims 2, 48 and 61-66 depend from claim 72 and include the limitations of this base claim.

Claim 72 states that the modified *Trichoderma reesei* xylanase II is selected from a group consisting of a defined list of 12 mutant modified *Trichoderma reesei* xylanase II proteins that have been described in the specification and that comprise specified modifications at positions 116, 118, 144, 161 or a combination thereof. The claim is therefore not directed to any variant of *Trichoderma reesei* xylanase II as argued by Examiner.

Examiner argues that the claimed proteins in claims 2, 48, 61-66 and 72 can have any structure even structures with low percentage of similarity or even no similarity to SEQ ID NO: 16. Applicant has amended claim 72 to indicate that the modified *Trichoderma reesei* xylanase II comprises an amino acid sequence that is from 93 to 99% identical to SEQ ID NO: 16.

Removal of the rejection to claims 2, 48 and 61-66 under 35 USC 112 (first paragraph) is respectfully requested.

CONCLUSIONS

It is respectfully submitted that the above-identified application is now in a condition for allowance and favorable reconsideration and prompt allowance of these claims is respectfully requested. Should the Examiner believe that anything further is desirable in order to place the application in better condition for allowance, the Examiner is invited to contact the Applicant's undersigned attorney at the telephone number listed below.

Except for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. §§ 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 50-1283.


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Respectfully submitted,
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